



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

Date: October 22, 1990

In reply refer to: M-90-73 through -75

Mr. Joseph Farrell  
President  
American Waterways Operators  
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On June 14, 1989, the U.S. tug BARCONA was under way from Long Beach, California, in San Pedro Channel with two empty deck barges in tandem tow astern, bound for Santa Catalina Island. The U.S. Navy nuclear attack submarine USS HOUSTON was operating submerged in the same area. At 0430, the HOUSTON prepared to come to periscope depth in order to obtain a navigation fix from a navigation satellite. The operating crew of the submarine did not detect the presence of the BARCONA's tow prior to reaching periscope depth. The submarine came to periscope depth close to the BARCONA and its tow, and an antenna that had been raised to obtain the navigational fix snagged the BARCONA's towline. When the submarine crew realized that they were perilously close to surface vessels, they executed an emergency dive at full power. The force of the diving submarine pulled the stern of the tug down and caused the tug to flood through open exterior main deck doors, and the tug sank. Two of the three crewmen were able to escape from the sinking tug and were later rescued. One crewman, however, remains missing and is presumed dead.<sup>1</sup>

When the towline was snagged by the HOUSTON, only the immediate release of the tow could have saved the BARCONA. The BARCONA had an after steering station located on its upper deck aft of the pilothouse, and the towline could have been released from this station. However, the after steering station was already under water when the master looked aft from the pilothouse less than a minute after he had awakened in his room. Thus, he had very little time in which to make a decision and to take action to release the towline. Had he decided to release the tow, he would have had to leave the pilothouse and proceed to the after steering station. And he did not have sufficient time to reach the after steering station before it became submerged. If the BARCONA had been outfitted with an emergency towline release mechanism operable from the pilothouse, the operator of the BARCONA

<sup>1</sup>For more detailed information, read Marine Accident Report--"Sinking of the U.S. Tug BARCONA by the U.S. Navy Nuclear Attack Submarine USS HOUSTON (SSN 713), San Pedro Channel, Near Santa Catalina Island, California," June 14, 1989 (NTSB/MAR-90/05).

could have released the tow when the tug's stern first began to be submerged, and the sinking of the BARCONA might have been averted.

The Safety Board has addressed the need for emergency towline release mechanisms in previous accident reports. In the Board's report on the capsizing and sinking of the U.S. oceangoing tug EAGLE,<sup>2</sup> the Board described the Canadian Government's requirement that all oceangoing towing vessels have an independent system for quickly releasing the brake on a towing winch from the pilothouse, each conning station, and the winch control station. The U.S. has no similar requirement. As a result of its investigation of the sinking of the EAGLE, the Safety Board recommended that the American Bureau of Shipping (ABS):

M-84-43

In conjunction with the U.S. Coast Guard, develop standards for towing systems on all ocean towing vessels, including a means used to lead and restrain the towing hawser over the stern of the vessel and the means for releasing the brake on towing winches remotely from the pilothouse and each steering station, and publish these standards as classification rules.

In a response dated August 2, 1990, ABS informed the Safety Board that it had developed rules for towing vessels and that:

In our rules for towing vessels, quick-release devices were proposed and approved as optional requirements... These rules became effective in May 1990.

The open doorways on the BARCONA provided extremely large openings through which rapid downflooding occurred. As soon as the lower portions of the doorways were submerged, a massive quantity of sea water flooded the vessel. Consequently, it was a matter of seconds before the tug lost all reserve buoyancy and sank.

Although securing the main deck doors might not have altered the outcome of this accident, the Safety Board believes that it was generally an unsafe practice for the BARCONA to have departed from the protected waters of Long Beach Harbor and entered the relatively unprotected waters of San Pedro Channel with these doors open. Prudent seamanship required that the doors be secured as soon as the tug cleared the harbor and that they only be opened when a crewman needed to pass through. This is especially true at night, when crewmen are asleep and no one is moving about the vessel. Conventional tugs, such as the BARCONA, have very little freeboard<sup>3</sup> amidships, and the

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<sup>2</sup>For more information, read Marine Accident Report--"Capsizing and Sinking of the U.S. Ocean Towing Vessel M/V EAGLE in the Gulf of Alaska, October 27, 1983" (NTSB/MAR-84/07).

<sup>3</sup>The distance from the waterline to the main deck.

main deck doors are located fairly close to the waterline. In addition to being vulnerable to being tripped or to being overridden by their tows, tugs, like other vessels, are subject to collisions and groundings. Any of these accidents can result in rapid flooding of the vessel if the main deck doors are open. Conventional tugs have large engineroom spaces which, if flooded, will cause the vessel to sink rapidly.

The master and the engineer from the BARCONA survived this accident, but the deckhand did not. The deckhand had expressed to the master that he intended to go to the engineroom, apparently to investigate the cause of the tug's difficulties. The master overruled the deckhand but still sent him below to awaken the sleeping engineer. If the BARCONA's accommodation spaces had been outfitted with a general alarm system operable from the pilothouse, the engineer could have been awakened without having to send someone below, and the deckhand would have had a greater chance of escaping from the vessel when it sank. The deckhand was a good swimmer and was reportedly in good health at the time of the accident. If he had been able to reach the surface when the tug sank, there is no reason to believe that he would not have been able to swim to the barge with the master and the engineer.

Therefore, the National Transportation Safety Board recommends that the American Waterways Operators:

Encourage member companies that operate seagoing tugs to install an emergency towline release mechanism that can be operated from the pilothouse on such tugs. (Class II, Priority Action) (M-90-73)

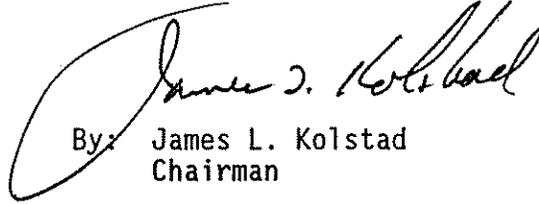
Remind member companies that operate seagoing tugs of the importance of keeping main deck doors closed while under way at sea. (Class II, Priority Action) (M-90-74)

Remind member companies that operate seagoing tugs of the need for general alarm systems that are operable from the pilothouse and that sound in the accommodation spaces of such tugs. (Class II, Priority Action) (M-90-75)

Also, the Safety Board issued Safety Recommendations M-90-67 through -69 to the U.S. Navy; M-90-70 through -72 to the Connolly Pacific Company; and M-90-76 and -77 to the U.S. Coast Guard.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-90-73 through -75 in your reply.

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, and LAUBER, BURNETT, and HART, Members, concurred in these recommendations.



By: James L. Kolstad  
Chairman